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IN THE CLAIMS

1. (Previously Presented) A method of measuring changes in an apparent depth of the anterior chamber of an eye, the anterior chamber being defined by a first interface between the cornea and the aqueous humor of the eye and a second interface between the aqueous humor and the ocular lens of the eye, the method comprising the steps of:

- a) focusing light to a measurement location proximate or within the eye;
- b) scanning the measurement location through the anterior chamber;
- c) detecting reflected light from the measurement location as the measurement location passes through the first and the second interfaces and generating a signal representative of the detected light;
- d) deriving from the signal apparent positions of the first and the second interfaces and, therefrom, the apparent depth of the anterior chamber;
- e) comparing the derived apparent depth with a previous reference measurement of the apparent depth, so as to determine a change in the refractive index of the aqueous humor; and
- f) calculating a measure of change in concentration of an analyte of interest in the aqueous humor from the determined change of refractive index.

2. (Previously Presented) The method of claim 1, wherein the analyte of interest is glucose.

3. (Currently Amended) The method of claim 1, wherein the analyte of interest is at least one of either a naturally occurring or an intentionally introduced substance.

4. (Canceled)

5. (Previously Presented) The method of claim 2, further comprising the step of calculating a measure of change in a concentration of glucose within the bloodstream of a patient.

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6. (Previously Presented) The method of claim 1, wherein the detected light is arranged to comprise substantially only light which has been focused to the measurement location and reflected by an interface of the eye.

7. (Currently Amended) The method of claim 1, wherein the scanning step (b) is achieved by one of translating a lens; translating a lens and varying a numerical aperture (NA) of the lens; translating a mirror of a mirror assembly; varying a refractive index of a variable refractive index element; or varying a focal length of a variable focal length lens.

8. (Previously Presented) The method of claim 1, wherein the signal peaks for points where the measurement location is coincident with an interface of the eye.

9. (Previously Presented) The method of claim 1, wherein the light has a single wavelength.

10. (Previously Presented) The method of claim 1, wherein the light comprises two or more wavelengths.

11. (Previously Presented) The method of claim 1, further comprising the prior step of providing a reference image, or object, to be focused by the eye during scanning, so as to enable the eye to be repeatably aligned.

12. (Canceled)

13. (Previously Presented) An apparatus for measuring changes in an apparent depth of the anterior chamber of an eye, the anterior chamber being defined by a first interface between the cornea and the aqueous humor of the eye and a second interface between the aqueous humor and the ocular lens of the eye, the apparatus comprising:

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- a) an optical focusing assembly, adapted to focus incident light to a measurement location proximate or within the eye;
- b) a scanning assembly, adapted to scan the measurement location through the anterior chamber;
- c) a detector, adapted to detect reflected light from the measurement location as the measurement location passes through the first and the second interfaces and adapted to generate a signal representative of the detected light; and
- d) a processor, adapted to:
 - i) derive from the signal apparent positions of the first and the second interfaces and, therefrom, the apparent depth of the anterior chamber;
 - ii) compare the derived apparent depth with a previous reference measurement of the apparent depth, so as to determine a change in the refractive index of the aqueous humor; and
 - iii) calculate a measure of change in concentration of an analyte of interest in the aqueous humor from the determined change of refractive index.

14. (Original) The apparatus of claim 13, the scanning assembly comprising a scanning stage, adapted to translate an element of the optical focussing assembly such that the measurement location is correspondingly scanned, wherein the processor is further adapted to track the translation of the element and thereby derive a position of the measurement location.

15. (Canceled)

16. (Previously Presented) The apparatus of claim 13, wherein the detector is further arranged to detect substantially only light which has been focused to the measurement location and reflected by an interface of the eye.

17. (Previously Presented) The apparatus of claim 13, wherein the light has a single wavelength.

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18. (Previously Presented) The apparatus of claim 13, wherein the light comprises two or more wavelengths.

19. (Previously Presented) The apparatus of claim 13, further comprising means to display a reference image, or object, for focusing by the eye during scanning, such that the eye may be repeatably aligned.

20. (Previously Presented) A method of measuring changes in a property of an eye, comprising the steps of:

- a) directing light from a light source to a first reference location;
- b) spatially filtering light not received at the first reference location;
- c) receiving light from the first reference location and focusing the light to a measurement location;
- d) scanning the measurement location along a measurement line within the eye;
- e) receiving reflected light from the measurement location and focusing the reflected light to a second reference location;
- f) spatially filtering reflected light not received at the second reference location;
- g) measuring an intensity of the reflected light received at the second reference location;
- h).relating an intensity measurement to an apparent position of the measurement location;
- i) selecting intensity measurements of interest, the intensity measurements of interest representing measurement locations of interest; and
- j) deriving a distance between the measurement locations of interest, the distance being an apparent depth of the anterior chamber, the anterior chamber being defined by a first interface between the cornea and the aqueous humor of the eye and a second interface between the aqueous humor and the ocular lens of the eye, the method further comprising the steps of:

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k) comparing the derived apparent depth with a previous reference measurement of the apparent depth, so as to determine a change in the refractive index of the aqueous humor; and

l) calculating a measure of change in concentration of an analyte of interest in the aqueous humor from the determined change of refractive index.

21-23. (Canceled)

24. (Previously Presented) The method of claim 20, wherein the first and second reference locations are coincident.

25. (Previously Presented) The method of claim 20, wherein scanning step (d) is achieved by one of translating a lens; translating a lens and varying a numerical aperture (NA) of the lens; translating a mirror of a mirror assembly; varying a refractive index of a variable refractive index element; or varying a focal length of a variable focal length lens.

26. (Previously Presented) The method of claim 20, further comprising controlling the light such that the light has one of a static, jittered, swept or stepped wavelength.

27. (Previously Presented) The method of claim 20, further comprising the steps of modulating the light and detecting the phase of the light received at the second reference location.

28. (Previously Presented) The method of claim 20, further comprising the step of generating light having two or more wavelengths, such that two or more properties of the eye may be measured.

29. (Previously Presented) The method of claim 20, further comprising the step of producing light having two or more polarization states, such that two or more properties of the eye may be measured.

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30. (Previously Presented) The method of claim 20, further comprising the steps of:

- i) producing a beam of coherent light;
- ii) splitting the light beam into a probe beam and a reference beam, such that the probe beam is controlled according to the method of any one of claims 20 to 29;
- iii) interfering the probe beam and the reference beam at a detector; and
- iv) measuring a resulting interference pattern.

31. (Previously Presented) The method of claim 20, further comprising the step of effecting a reference accommodation of the eye by placing a reference object in a line of sight of the eye.

32-33. (Canceled)

34. (Previously Presented) An apparatus for measuring changes in a property of an eye, the property being an apparent depth of the anterior chamber defined by a first interface between the cornea and the aqueous humor of the eye and a second interface between the aqueous humor and the ocular lens of the eye, the apparatus comprising:

- a light source;
- a source optical element, adapted to direct light from the light source to a first reference location;
- an objective optical element, adapted to receive light from the first reference location and to focus the light to a measurement location, the objective optical element being further adapted to scan the measurement location along a measurement line within the eye and through the anterior chamber;
- a return optical element, adapted to receive reflected light from the measurement location and to focus the reflected light to a second reference location;

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an optical detector, adapted to measure an intensity of the reflected light received at the second reference location; and

a processor, adapted to:

- i) relate intensity measurements of interest to apparent positions of the measurement location, so as to derive the apparent depth of the anterior chamber;
- ii) compare the derived apparent depth with a previous reference measurement of the apparent depth, so as to determine a change in the refractive index of the aqueous humor; and
- iii) calculate a measure of change in concentration of an analyte of interest in the aqueous humor from the determined change of refractive index.

35-37. (Canceled)

38. (Previously Presented) The apparatus of claim 34, wherein the source optical element comprises one of a lens configuration, an optical fibre, or another light guide structure.

39. (Previously Presented) The apparatus of claim 34, wherein the first reference location is provided by one of a pinhole aperture, a source-detector combination, an optical fibre, or another light guide structure.

40. (Previously Presented) The apparatus of claim 34, wherein the objective optical element and/or the return optical element comprises a compound lens.

41. (Previously Presented) The apparatus of claim 34, wherein the objective optical element and the return optical element are constituted by the same optical element.

42. (Original) The apparatus of claim 41, wherein the first and second reference locations are coincident.

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43. (Previously Presented) The apparatus of claim 40, further comprising a translation stage, adapted to translate a lens of the compound lens and thereby to scan the measurement location along the measurement line.

44. (Previously Presented) The apparatus of claim 34, wherein the light source comprises a white light source and one of a spectrometer, an etalon, or a multiplexer.

45. (Previously Presented) The apparatus of claim 34, further comprising a reference object for viewing by the eye, the reference object being positioned such that an accommodation of the eye may be repeatably achieved.

46. (Previously Presented) A micro-electromechanical system, comprising the apparatus of claim 13.

47. (Previously Presented) A micro-electromechanical system, comprising the apparatus of claim 34.

48. (Previously Presented) A hand-held device, comprising the apparatus of claim 13.

49. (Previously Presented) A hand-held device, comprising the apparatus of claim 34.

50. (Previously Presented) A hand-held device, comprising the micro-electromechanical system of claim 46.

51. (Previously Presented) A hand-held device, comprising the micro-electromechanical system of claim 47.

52-53. (Canceled)